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Install smoke alarms on or near the ceiling. If only one is to be used, install it on the ceiling near the sleeping quarters. Additional alarms may be placed at the head of the stairs to each floor, and on the living room ceiling.

Alarms placed in or near the kitchen may be subject to nuisance alerts from cooking smoke.

Maintenance

Other than an occasional vacuuming to clear dust particles from the chamber, the units need little maintenance.

Photoelectric units which use a bulb as the light source should be checked periodically to ensure that the bulb is working; battery units should be checked for battery life, particularly if you have been away for some time.

Some experts suggest that you frequently test units by blowing smoke into them.

Operation of the units

When the unit "senses" a fire hazard, it emits an audible signal which is loud enough to awaken people in nearby rooms. If several units are interconnected, they will sound the alarm.

Battery failure is indicated by both an audible and a visual signal, either a warning light or a flag which pops out when the battery is weak.

Ontario Building Code requirements

All new houses started after Jan. 1, 1976 and apartment buildings after Oct. 2, 1979 are required to have one or more smoke alarms installed between the sleeping and living areas on the ceiling. They must be audible in bedrooms when intervening doors are closed.

This unit must be connected to the building power supply without a disconnecting wall switch; have a visual signal that it is in operating condition; be permanently mounted to a standard electrical outlet or junction box on or near the ceiling and have no disconnect switch between the overcurrent device and the detector.

Some questions worth asking

How do I best protect my family?

Reduce fire hazards, educate family members about fire escape routes and procedures and provide an early warning system to alert occupants if fire breaks out.

How do I choose a smoke alarm?

Be sure any unit you buy is ULC listed. Ionization type alarms sense products of combustion before smoke is actually visible and quickly respond to fires at the incipient stage. Some tests indicate that photoelectric type alarms respond more quickly to smoldering fires.

What about price?

In Ontario, prices currently range from \$15 to about \$40. Additional charges include installation or battery replacement.

Is there a radiation hazard from the ionization type smoke alarms?

Before issuing a licence to distributors, the Atomic Energy Control Board examines the radioactive feature of the smoke alarm. Radiation outside the unit is said to be less than that of a luminous wristwatch or a color television set.

Can I install it myself?

If the unit is to be connected to the building's electrical supply system, have an electrician do it. An incorrectly-installed unit is worse than no unit at all. Battery-operated units are easily installed by the owner.

Does it matter where I put the unit?

Yes. Protection is especially needed at night, so if one unit is to serve the house, put it on or near the ceiling (according to manufacturer's directions) between the bedroom and the living areas.

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Smoke alarms: worth the price?

Fire. It's a word which connotes terror, loss, tragedy. Each year in Ontario, several hundred people die and thousands of others lose their possessions.

Fire losses could have been reduced if warning had come early enough. Lives could have been saved.

In 1979, 2,688 fires in Ontario caused 215 deaths, 1,493 injuries and almost \$200 million in property damage.



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Protecting lives

Protection of your home and family from fire loss depends on a three point program:

- reducing fire hazards in your home;
- establishing a fire escape route;
- providing an early warning system.

Reducing fire hazards in the home

Fire departments will, on request, inspect your home for possible fire hazards and make recommendations where necessary. You should educate children about fire danger and post the fire department number prominently beside each telephone.

Establishing a fire escape route

The most carefully-planned escape route is useless unless practised by all family members. Decide the best method of escape and an alternative if possible; then try it out. Review your escape plans at least once a year.

Providing an early warning system

Fire extinguishers should be readily available in the kitchen but they should be used only for small, controllable fires. Don't attempt to put out a large fire.

Because many fires start at night when people are sleeping, an early warning system can save lives. For that reason, the Ontario Building Code requires installation of smoke alarms in all new homes and suites in apartment buildings.

Types of alarms

There are a number of types of fire alarms available. Smoke alarms, as they are commonly referred to, are recommended for residential use, for early warning purposes, due to their quicker reaction to combustion. Heat and flame detectors are suitable for storage areas not generally used for living purposes and are more effective for protecting property than lives.

Be sure that any unit you buy has been listed by Underwriters' Laboratories of Canada.

Smoke alarms respond to a fire signal and set off an audible alarm.

There are two types of smoke alarms: ionization (or products-of-combustion) and photoelectric. Both are effective in warning occupants, but the manner of operation varies.

Ionization type smoke alarms

Ionization type smoke alarms use a minute amount of radioactive material to create small currents through "ionized" air. When smoke enters the chamber, it impedes the flow of current and, at a predetermined level, sets off the alarm.

Photoelectric type smoke alarms

This type uses a light-sensitive photoelectric cell and a light source, either a bulb or a light-emitting diode. When smoke enters the unit, it scatters the light beam, deflecting it to the photoelectric cell and setting off the alarm.

Photo-ion combination smoke alarms

This type is new and combines the photoelectric and the ionization smoke detection methods. It is said to be the most effective because it reacts to both smouldering fires and invisible gases from a clean fire.

Effectiveness of smoke alarms

Ionization alarms are relatively effective in detecting smoke from fires even before the smoke is visible. Photoelectric units, according to some tests, may respond more quickly to certain types of smoke.

Stages of a fire

Fires go through four basic stages: the early stage, where there are no visible products of combustion (such as smoke). Ionization alarms can detect fire at this stage.

The smouldering stage, where smoke is visible but flames have not yet started. Photoelectric alarms will be triggered at this stage.

The flame stage, where actual fire has broken out. It is followed almost instantly by the heat stage with uncontrolled heat and expansion of air. It is at this stage that heat-activated alarms would sound an alarm.

Experts say that the duration of each stage varies considerably according to the source of the fire and conditions in the fire area, such as presence of drafts and combustible material.

Installation of smoke alarms

Smoke alarms now on the market may be battery operated, plugged into the wall or hooked up to house wiring.

Battery operated units are the easiest to install. They come with a battery which lasts about a year, at which time the unit "beeps" and a visual signal indicates that a new battery is needed. This signal may last seven days or longer, but if you are on holiday when your unit warns you that battery life has expired, your unit may no longer be functioning when you return.

Plug-in units have the disadvantage of a fixed-length cord which dictates where the unit may be placed. This type of unit is also easily unplugged and if a circuit becomes overloaded and a fuse blows, the unit will no longer provide a warning.

Mandatory house-wired systems, which are now being installed in all new homes and apartment buildings in Ontario, may be interconnected so that if one unit senses a fire hazard, all units will be triggered. If the power fails, of course, the units will not signal but chances of power failure concurrent with fire are relatively small.